IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

LORRAINE GREENE,	:	**CIVIL ACTION NO. 1:18-CV-1962**
	:	
Plaintiff	:	**(Judge Conner)**
	:	
v.	:	
	:	
UNITED STATES OF AMERICA,	:	
	:	
Defendant	:	

MEMORANDUM

Plaintiff Lorraine Greene[1] alleges that Dr. Ming Pan, a surgeon employed by the United States Department of Veterans Affairs, committed medical malpractice while performing her laparoscopic cholecystectomy. This procedure is commonly known as a gallbladder removal surgery or a "lap chole." Greene seeks to impose liability on the United States pursuant to the Federal Tort Claims Act ("FTCA"), 28 U.S.C. § 2671, *et seq.*, and 28 U.S.C. § 1346(b). We convened a bench trial in November 2020, and we now set forth our findings of fact and conclusion of law pursuant to Federal Rule of Civil Procedure 52(a). As we explain in further detail herein, the court finds in favor of Greene and will award her damages in the amount of $465,000.00.

[1] Although the trial transcript identifies the plaintiff as "Lorraine Green," (see generally 11/18/20 Tr.), the records in this case clarify that the plaintiff's name is spelled "Lorraine Greene," (see Gov't Ex. 1-5 at 1).

I. Findings of Fact[2]

Greene is a 56-year old Pennsylvania resident who underwent elective gallbladder removal surgery—a "lap chole"—on August 9, 2016. (See 11/18/20 Tr. 127:8-9, 131:4-7). Dr. Pan, a general surgeon at the Lebanon, Pennsylvania Veteran's Affairs hospital, performed the surgery with Dr. Gayle Ryan. (See Gov't Ex. 1-6; Gov't Ex. 21). Greene claims that Dr. Pan's conduct during this procedure amounts to negligence and malpractice.

A. Greene's Symptoms Before Her Surgery

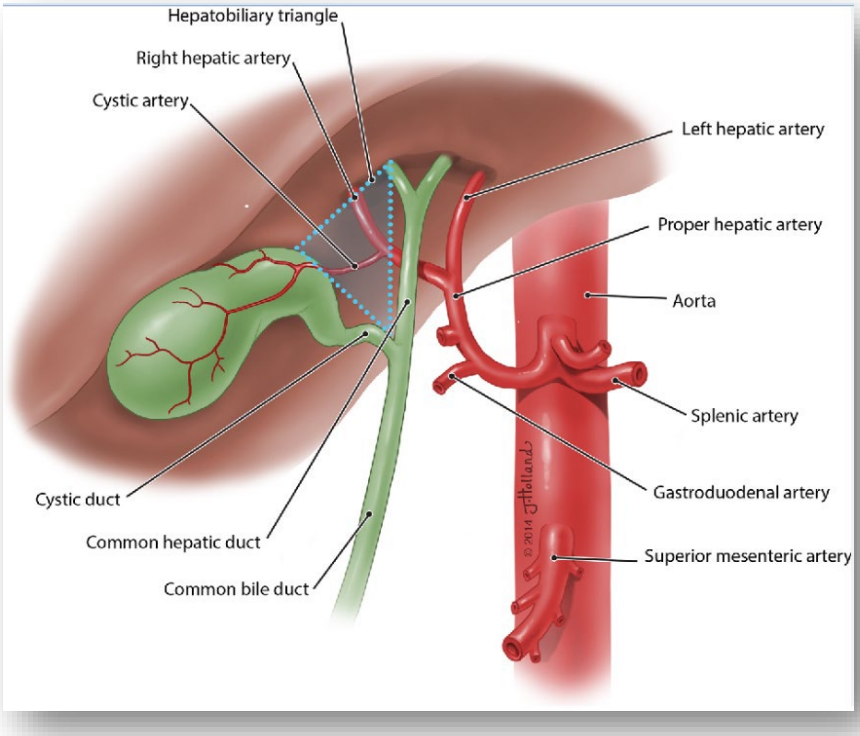
In 2015 and 2016, Greene began experiencing abdominal pain, (11/18/20 Tr. 130:3-13, 155:17-24), and an ultrasound confirmed the presence of gallstones, (id. at 194:11-12). Greene first presented to Dr. Pan for a surgical consult in January 2016, (id. at 25:7-12), during which Dr. Pan recommended against surgery, (id. at 194:12-18). After a later visit to the emergency room for abdominal pain and vomiting, Greene presented to Dr. Pan for a second time in July 2016, at which point she elected to have her gallbladder removed. (Id. at 130:3-131:7, 194:19-195:11; Gov't Ex. 1-4). Before Greene's procedure, Dr. Pan apprised her of the risks and benefits of undergoing a lap chole, and she knowingly decided to proceed with the procedure. She signed an informed consent form memorializing her decision to proceed with the elective surgery. (See Gov't Ex. 1-5). In doing so, she acknowledged several "[k]nown risks and side effects" inherent in the procedure,

[2] The following narrative represents the court's findings of fact as derived from the record. Citations thereto include the transcript of the two-day bench trial convened on November 18 and 19, 2020, ("[Date] Tr. [page:line]"), as well as exhibits introduced by both parties, ("Greene Ex. [number]" and "Gov't Ex. [number]").

including "[i]njury to the common bile duct . . . leading to possible need for further surgery," "[p]ossible need for 'open' (non-laparoscopic) surgical procedures," "[p]ossible need for further surgery on the bile ducts," "[p]ossible significant blood loss," "[u]nexpected change in procedure at time of surgery," and "[l]ess than complete recovery of normal functions or pain relief." (Id. at 2).

B. Laparoscopic Cholecystectomies

A cholecystectomy is the surgical removal of a patient's gallbladder. (Id. at 1). A traditional, textbook anatomy of one's gallbladder is represented below:



(Gov't Ex. 43; 11/18/20 Tr. 117:5-8).

A cholecystectomy can be performed "laparoscopically" or in an "open" procedure. A laparoscopic cholecystectomy requires the surgeon to insert a small

laparoscopic camera and other surgical instruments through small incisions in the patient's abdomen while the patient is anesthetized. (Gov't Ex. 1-5 at 1-2). The laparoscope provides the surgeon with a two-dimensional view of the patient's internal organs. (11/19/20 Tr. 184:21-23, 192:20-21). During this procedure, surgeons use two graspers and a dissector, enabling the surgeons to grasp, retract, dissect, clip, cut, and remove the gallbladder. (11/18/20 Tr. 187:7-18). The goal of a cholecystectomy is to identify, clip, and transect the only two structures entering the gallbladder—*i.e.*, the cystic duct and the cystic artery—separating the gallbladder from the biliary tree, and dissect the gallbladder from the liver, allowing for removal of the gallbladder altogether. (See id. at 69:11-72:2; see also Gov't Ex. 1-5 at 1-2). In a properly performed cholecystectomy, only the cystic duct and the cystic artery are transected. (11/18/20 Tr. 24:8-10, 24:13-25:5, 42:5-7, 50:13-20, 70:23-71:2, 83:8-22).

Greene presented expert testimony from Dr. Fred Joseph Simon establishing—and the parties agree—that there are two commonly accepted methods by which surgeons can adequately identify the cystic duct and cystic artery: the "Critical View of Safety" approach and the "infundibular" approach. (Id. at 24:3-7, 69:11-72:2, 106:18-107:17, 114:16-18; 11/19/20 Tr. 28:9-19).[3] We start with the Critical View of Safety method. To obtain the critical view of safety, the surgeon follows three steps. *First*, the surgeon must dissect the peritoneum and

[3] The parties' experts also dispute whether documentation of the Critical View of Safety approach is required under the applicable standard of care. (See 11/18/20 Tr. 112:19-114:22 (Simon); 11/19/20 Tr. 118:10-14 (Iannarone)).

fatty and fibrous tissue from what is known as the "Triangle of Calot" or the hepatocystic triangle. (11/18/20 Tr. 70:2-17, 189:10-22). The Triangle of Calot includes the space between the cystic duct, the common hepatic duct, and the bottom edge of the liver. (Gov't Ex. 43; 11/18/20 Tr. 70:2-17). By clearing out the Triangle of Calot, the surgeon is able to see "only two structures entering the gallbladder, a cystic artery and a cystic duct." (11/18/20 Tr. 70:24-71:2). Although locating the common bile duct and common hepatic duct is relevant to ensure the surgeon has identified the proper structures entering the gallbladder, surgeons are not required to dissect or expose the common bile duct or common hepatic duct.[4]

Second, the surgeon must partially dissect the lower portion of the gallbladder from the liver bed. (11/18/20 Tr. 71:8-10; id. at 81:1-3 (surgeon can dissect as much as is necessary to "give[] you the view" of the critical structures)).

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[4] We credit Dr. Simon's testimony regarding the necessity that surgeons carefully identify and expose only those structures essential to gallbladder extraction, and avoid injury to those structures which could result in catastrophic consequences. (Id. at 89:1-10 ("You don't go near [the common bile duct, the hepatic artery, or the portal vein] when you're doing a laparoscopic cholecystectomy. It's pretty obvious why. You hit the portal vein, people die very quickly. If you get into the common hepatic artery you get a fair amount of bleeding. And you don't want to injure the common bile duct, and the basic premise always has been try not to violate the tissues near the common bile duct because you'll disrupt the small blood vessels to the common bile duct." (Simon)). In fact, both experts agree on this point. (See 11/19/20 Tr. 91:19-25 ("Usually we don't see the common duct. When we talk about the critical view of safety, the one border of the critical view of safety is the common bile duct. The common bile duct/common hepatic duct. They're both the same duct. We don't like to go into that area, because if we do go into that area we run the risk of injuring the common bile duct, the portal vein, or the hepatic artery." (Iannarone)); see also id. at 46:20-23 ("For lap chole we do not expose common hepatic duct or common bile duct. Exposing them will cause the injury we try to avoid. So we don't see the common hepatic duct or common bile duct . . . ." (Pan)).

Partial dissection of the gallbladder enables the surgeon to apply traction—pulling and manipulating—to the gallbladder and identify the structures entering and surrounding the gallbladder. (Id. at 71:8-25). *Third*, the surgeon identifies the two and only two structures identified as entering the gallbladder, to wit: the cystic duct and the cystic artery. (Id. at 71:20-72:2). Once the surgeon has dissected the Triangle of Calot and identified two, and only two, structures entering the gallbladder, he or she has obtained the critical view of safety. (Id.) The surgeon is then free to clip and cut the two structures identified as the cystic duct and cystic artery entering the gallbladder, and fully dissect and remove the gallbladder. (Id.; id. at 81:23-82:8). The infundibular technique is substantially similar to the Critical View of Safety technique, except that the surgeon is not required to partially dissect the gallbladder before identifying the relevant structures. (Id. at 106:22-107:6).

Bile duct injuries may happen in the absence of negligence during lap choles. (Id. at 116:17-19). In fact, common bile duct injuries are usually not caused by negligence, and they can occur even when the surgeon employs the Critical View of Safety technique. (Id. at 116:20-25). Stated differently, "[t]here's no foolproof way in any operation" to prevent complications even when using the Critical View of Safety technique. (Id. at 117:1-4).

Bile duct injuries often take the form of what is dubbed the "classic" injury. The classic injury occurs when the common bile duct is misinterpreted as the cystic duct, leading the surgeon to incorrectly clip and cut the common bile duct. (11/19/20 Tr. 91:4-10). The classic injury can occur when the surgeon puts lateral traction on the gallbladder, causing the common bile duct to bow. When traction is

applied in this form, the cystic duct and the common bile duct are straightened, and the two structures can appear to be a single duct leading into the gallbladder. (Id. at 91:11-93:10). Misapprehending the two structures as a single duct, *i.e.*, the cystic duct, the surgeon then clips and cuts the common bile duct, not the cystic duct. (Id.) After cutting the common bile duct, and not the cystic duct, the common hepatic duct (which is still connected to the cystic duct) remains connected to the gallbladder via the cystic duct. (Id.)

C. Greene's Procedure

Greene presented for her lap chole on August 9, 2016. (Gov't Ex. 1-6). Dr. Pan and Dr. Gayle Ryan performed the procedure. (Id.) Dr. Pan went to medical school in China, received a PhD from the University of Florida, and completed a post-doctoral fellowship at Harvard Medical School and Massachusetts General Hospital. (See Gov't Ex. 21). He completed his general surgery residency at the University of Texas, where he participated in at least 100 lap choles and 20 open cholecystectomies. (11/18/20 Tr. 181:17-184:4; see also Gov't Ex. 21). Dr. Pan became a general surgeon with the VA in 2000, and, during his tenure with the VA, has also served as a surgical professor. (11/18/20 Tr. 184:6-185:4; Gov't Ex. 21). He is licensed to practice medicine in Pennsylvania and is certified by the American Board of Surgery as a general surgeon. (11/18/20 Tr. 185:8-25; Gov't Ex. 21). Between 2000 and 2016, Dr. Pan performed between 50 and 80 cholecystectomies. (11/18/20 Tr. 22:15-20).

Dr. Ryan graduated from Boston University School of Medicine and completed her general surgery residency at Walter Reed Army Medical Center.

(11/19/20 Tr. 52:11-56:1). Dr. Ryan became a general surgeon at the VA in 2007. (Id.) Before that, Dr. Ryan was chief of Bariatric and Advanced Laparoscopy at Dewitt Army Community Hospital. (Id.) Dr. Ryan has performed roughly 400 lap choles during her career. (Id.)

Dr. Pan and Dr. Ryan testified at trial that they achieved the Critical View of Safety before clipping or cutting any structures. (See, e.g., 11/18/20 Tr. 199:18-23; 11/19/20 Tr. 8:3-19, 9:8-12, 61:24-25, 63:10-25, 64:20-65:19, 71:24-72:3). For the reasons set forth below the court does not find this testimony to be credible. Drs. Pan and Ryan testified that, during Greene's procedure, they dissected the fibrous tissue and peritoneum surrounding the gallbladder and in the area of the Triangle of Calot, enabling them to visualize what they believed to be the two structures entering the gallbladder. (11/18/20 Tr. 50:15-16; 11/19/20 Tr. 7:4-13, 61:18-20; Greene Ex. 1 at 1 ("perineum (sic) was easily dissected from cystic duct and gallbladder neck")). Dr. Pan's operative report does not mention dissecting the fatty and fibrous tissue beneath the peritoneum and within the Triangle of Calot. (See Gov't Ex. 1-6; 11/19/20 Tr. 37:3-38:16). Dr. Pan also claims he dissected the lower third of the gallbladder off the liver bed. (11/19/20 Tr. 9:8-12, 61:22-24, 66:23-25).

After this dissection, Dr. Pan took an intraoperative photograph of the structures they identified as the cystic duct and cystic artery before any clipping or cutting. (See Gov't Ex. 1-7). Dr. Pan was not applying traction to the gallbladder when this photograph was taken. (See id.; see also 11/19/20 Tr. 190:5-22). Dr. Pan clipped and cut two structures after purportedly identifying them and taking the intraoperative photograph. (Gov't Ex. 1-6 at 2). Dr. Pan placed three clips—two on

the distal part and one near the gallbladder neck—on what he identified as the cystic duct before cutting it. (Id.) After cutting the structure, Dr. Pan placed a "vessel loop" over the structure he identified as the cystic duct to reinforce the clip he had placed thereon. (Id.) He then placed three clips on what he believed to be the cystic artery and cut between the clips. (Id.) Dr. Pan testified that there was no evidence of abnormal anatomy when they clipped and cut the two structures. (11/18/20 Tr. 15:6-7, 31:6-11, 41:17-19, 50:20-23; Gov't Ex. 1-6). Dr. Pan and Dr. Ryan both also testified that there was no bleeding immediately following the clipping and cutting of these structures. (11/19/20 Tr. 12:6-7, 62:4-5).

Dr. Pan next began further dissecting the gallbladder from the liver bed. (Gov't Ex. 1-6 at 2). While dissecting the gallbladder from the liver bed, Dr. Pan observed "mild adhesion of the gallbladder to the liver bed consistent with old scar tissue" and encountered a "small branch vessel bleeding from [the] liver bed." (Id.) Dr. Pan determined that he could not control the bleed laparoscopically, so he converted the laparoscopic procedure to open. (Id.) Dr. Pan contained the bleed by suturing the small vessel branch shut. (Id.) After converting to an open procedure, Dr. Pan observed that the "cystic duct and cystic artery were in the normal anatomic position. Common bile duct was identified and was away from the surgery site." (Id.) Dr. Pan proceeded to dissect the gallbladder from the liver and discovered a "tubular structure straight between [the] liver bed and [the] gallbladder body," going from the "liver bed directly into the gallbladder." (Id. at 2-3).

At this point, Dr. Pan performed an intraoperative cholangiogram to clarify the biliary anatomy he and Dr. Ryan encountered. (Id.; 11/18/20 Tr. 99:1-6). The results of the cholangiogram were inconclusive. (Greene Ex. 1 at 2; 11/19/20 Tr. 15:4-14). According to Dr. Pan's operative report, Dr. Pan then consulted with Dr. Ashok Kumar Jain, a liver and transplant surgeon at Hershey Medical center. (Greene Ex. 1 at 3; 11/19/20 Tr. 15:15-20). Dr. Jain advised Dr. Pan to ligate (*i.e.*, tie off) the suspect duct, place a drain in the duct, close the patient, and transfer her to Hershey Medical Center. (11/19/20 Tr. 15:15-16:16). Dr. Pan ligated the structure with a silk string and placed a drain in it before closing Greene's abdomen. (Greene Ex. 1 at 3). None of Dr. Pan's reports mention employing the Critical View of Safety technique to identify the structures in Greene's biliary tree. (See Gov't Exs. 1-6, 1-11, 1-12). Dr. Pan's post-operative notes document his suspicion that Greene had an aberrant anatomy. (Compare Greene Ex. 4, with Greene Ex. 5; see also, e.g., Gov't Ex. 1-14 at 1). All told, Greene lost 650 milliliters of blood during her cholecystectomy; typical blood loss for this procedure is less than 50 to 100 milliliters. (11/18/20 Tr. 40:14-23, 68:3-5).

Greene was then transferred to Hershey Medical Center, where Dr. Zakiyah Kadry treated her. (See Gov't Ex. 1-14). As relevant here, Dr. Kadry performed an open Roux-en-Y hepaticojejunostomy—reconstruction of the biliary structures—on August 12, 2016. (Id.; 11/19/20 Tr. 109:7-10). Dr. Kadry also performed a thrombectomy and anastomosis of Ms. Greene's right hepatic artery. (Gov't Ex. 1-14). Her operative report supports diagnoses of a "complete transection of the common bile duct," a "complete transection of the common hepatic duct," and a

"complete occlusion of the right hepatic artery . . . where there appeared to be also (sic) several surgical clips." (Id. at 1-2; see also Gov't Ex. 1-17 ("The common bile duct was completely obstructed by clips from previous cholecystectomy."); 11/19/20 Tr. 47:16-48:21 (Dr. Pan explaining that he ligated the common hepatic duct at a "later point in time because when I saw the, when I tried to remove the gallbladder out from live (sic) bed I saw the tubular structure"); 11/18/20 Tr. 25:22-26:11).[5] Dr. Kadry's notes describing her observations during her procedure observe:

> There was a complete transection of the common hepatic duct. The lower distal end had several clips and a silk tie as well as a Prolene stitch. The proximal hepatic duct appeared to contain the PTC catheter and was also tied. . . . Ultimately, the right hepatic artery was visualized and appeared to be completely thrombosed. There were 2 clips in the area of the right hepatic artery. The first one was at the base of the cystic artery and the second one went across the 2 sides (distal & proximal ends on either side of the point of entry of the cystic artery) of the right hepatic artery indicating that most likely the right hepatic artery had been tented upwards and the clip went across both ends causing it to thrombose.

(Gov't Ex. 1-14 at 2). Her operative report otherwise makes no mention of relevant abnormal anatomy. (See id.).

[5] We note that Dr. Kadry's medical records are at times inconsistent in the description of what structures were transected. (Compare Gov't Ex. 1-14 at 1-2 (noting transection of the common bile duct and common hepatic duct under the "INDICATIONS" section, but noting only transection of the common hepatic duct under the "OPERATION" section), with Gov't Ex. 1-17 at 1 (noting "common bile duct was completely obstructed by clips from previous cholecystectomy")). The parties vigorously debated which duct—the common bile or the common hepatic—Dr. Pan misidentified and cut at trial.

D. Greene's Injuries and Recovery

The incision and scarring from Greene's procedures are substantial. According to Greene, she received an incision dubbed a "Mercedes cut"—an incision running from her lower rib cage up to the top of the rib cage and back down the other side. (11/18/20 Tr. 137:6-15; see also Greene Ex. 12). This scar is roughly 17 inches long. (11/18/20 Tr. 148:21-23). She also suffered scarring from the incisions made to perform the laparoscopic procedure. (Id. at 138:5-139:12; see also Greene Ex. 12). As explained in her operative report, Dr. Kadry's reconstructive surgery was also open and tracked the incision made by Dr. Pan in his conversion to open. (See Gov't Ex. 1-14 at 2).

Immediately following her procedures, Greene found herself in severe pain. (11/18/20 Tr. 135:18-20). She had several drainage tubes inserted into her abdomen, in addition to general administration of intravenous fluids and morphine. (Id. at 135:21-136:3). Greene testified at trial that, while in the hospital, she was constantly dosing herself with morphine to manage her pain and discomfort. (Id. at 136:20-137:5). She remained in the hospital for roughly ten days weeks. (Id. at 136:2-13). Upon discharge, Greene was required to keep a chest tube in, making it difficult to breath. (Id. at 136:14-19). Greene underwent another procedure about six weeks after her lap chole to have her chest tube removed. (Id. at 141:20-25). The pain she suffered from her procedures substantially impacted her ability to sleep, forcing her to sleep in a chair for close to six months. (Id. at 140:8-17). It also affected her mobility. (Id. at 140:18-21).

After her surgeries, Greene was prescribed pain medication on a short-term basis for her incisional pain. (Id. at 170:2-13). She also received daily blood-thinning shots for roughly one month after the surgeries, at first from an at-home nurse but she later self-administered her treatment. (11/18/20 Tr. 140:22-141:19). Greene reports employing two pain killers—oxycodone and lidocaine patches—to address her abdominal pain and help her sleep. (Id. at 145:13-146:12; see also id. at 165:12-15). Her medical records do not indicate that she was prescribed oxycodone or lidocaine patches for her abdomen-related pain, aside from her initial short-term prescription. (See generally Gov't Ex. 1-29). Rather, Greene testified that her oxycodone and lidocaine simultaneously relieves her orthopedic and abdominal pain. (11/18/20 Tr. 170:19-171:6). She also testified that her general practitioner continues to prescribe her oxycodone and lidocaine in part to manage her abdominal pain. (Id. at 166:1-6). In addition to prescription medicine, Greene's doctors recommended that she receive an intercostal nerve block to address her abdominal pain, but, as of the date of trial, she has declined to accept such treatment. (Id. at 168:4-22).

Greene did not report surgery-related pain during several encounters with VA medical professionals. (See Gov't Ex. 1-29 at 1, 6, 15, 16, 22, 26). Instead, she has reported pain related to her various preexisting orthopedic injuries. (See id. at 2-5, 7-9, 11-13, 17-21, 23, 25, 27, 30-33, 36; 11/19/20 Tr. 135:12-137:2 ("most of her complaints were for other areas orthopedic (sic) in nature"); but see Gov't Ex. 1-29 at 14 (pain rating of 2 out of 10 in abdomen and requesting pain management assistance).

Greene's recovery from these procedures took, by her estimation, about one year. (11/18/20 Tr. 143:13-18). She reports feeling weak since the surgery, a constant stinging sensation in her stomach, having a lump in her stomach, and a loss of sensation in her abdominal region. (Id. at 144:4-25, 146:5-12, 146:24-147:8, 149:24-150:3, 165:3-18). According to the government's expert, Dr. Lorenz Iannarone,[6] Greene's numbness is the result of the cutting of her subcostal nerve, which would have occurred during either the open cholecystectomy or the later reconstructive surgery. (11/19/20 Tr. 149:3-24). Dr. Iannarone explained that this injury is permanent. (Id. at 150:4-151:5). Greene should also expect to obtain only 80 to 85 percent of her abdominal strength: "It's never as good [as] what God did in the first place." (Id. at 151:10-19).

Greene also reports mental trauma from this experience. She has frequent nightmares in which she fears "this is starting all over again," and that she will end up in the hospital and be required to live through her surgeries once again. (11/18/20 Tr. 145:13-146:1). She also feels "[e]mbarrassed" and "[d]isgusted" by her scars. (Id. at 149:5-12). Greene has not sought psychological counseling, nor has she been diagnosed depression or post-traumatic stress disorder. (Id. at 171:12-172:2).

[6] Although the trial transcript identifies the government's expert as "Dr. Ihnnarone," (see generally 11/19/20 Tr.), the government's post-trial submission clarifies that its expert's name is "Dr. Iannarone," (see generally Doc. 35).

II. Procedural History

Greene initially filed this action in the Court of Common Pleas of Lebanon County, Pennsylvania, before the government removed it to this court. The complaint alleges medical negligence against Dr. Pan and Dr. Gayle Ryan, and corporate negligence against the United States. Greene pursued only her medical negligence claim against Dr. Pan at trial. After trial, the parties submitted their proposed findings of fact and conclusions of law.

III. Conclusions of Law

The Federal Tort Claims Act provides that "the United States shall be liable, respecting the provisions of this title relating to tort claims, in the same manner and to the same extent as a private individual under like circumstances." 28 U.S.C. § 2674. The substantive state law where the tortious conduct occurs governs a FTCA claim, see Sosa v. Alvarez-Machain, 542 U.S. 692, 700 (2004), so Pennsylvania law applies.

Under Pennsylvania law, medical negligence, or medical malpractice, is defined as "the unwarranted departure from generally accepted standards of medical practice resulting in injury to a patient, including all liability-producing conduct arising from the rendition of professional medical services." Toogood v. Owen J. Rogal, D.D.S., P.C., 824 A.2d 1140, 1145 (Pa. 2003) (citing Hodgson v. Bigelow, 7 A.2d 338 (Pa. 1939)). The existence of an injury, by itself, does not prove a doctor's negligence. Mitchell v. Shikora, 209 A.3d 307, 315 (Pa. 2019) (citations omitted). Plaintiffs in medical malpractice cases must instead "establish a duty owed by the physician to the patient, a breach of that duty by the physician, that the

breach was the proximate cause of the harm suffered, and the damages suffered were a direct result of the harm." Toogood, 824 A.2d at 1145 (quoting Hightower-Warren, 698 A.2d at 54); see also Mitchell, 209 A.3d at 315. Expert testimony is generally required to establish "the applicable standard of care, the deviation from that standard, causation and the extent of the injury." Toogood, 824 A.2d at 1145 (citing Hightower-Warren, 698 A.2d at 54).

Plaintiffs can establish a breach of the standard of care and causation by proving the defendant "did not possess and employ the required skill and knowledge, or did not exercise the care and judgment of a reasonable professional, he or she must also prove that the injury was caused by the failure to employ that requisite skill and knowledge." Id. at 1149. Doctors need not be "infallible, and making a mistake is not negligence as a matter of law." Id. at 1150. Instead, liability attaches only if the doctor failed to "employ that degree of knowledge, skill, and care ordinarily possessed by members of the medical profession." Id. (citation omitted). Plaintiffs must show the doctor's conduct was a "substantial factor in bringing about" their harm—liability does not extend if the injuries would have occurred in the absence of negligence. Hamil v. Bashline, 392 A.2d 1280, 1284 (Pa. 1978) (citations omitted).

Plaintiffs are also required to prove damages flowing from the doctor's breach using expert testimony. Toogood, 824 A.2d at 1145 (citation omitted). Greene is only pursuing noneconomic damages in this case. (11/18/20 Tr. 5:11-16). In determining past and future noneconomic damages, we consider the plaintiff's age and prior health condition, the severity and duration of the injuries, the impact

the injuries have affected her ability to perform basic activities of daily living, whether additional treatment will be needed in the future, the severity and duration of any physical and mental pain and suffering, and the extent to which any disfigurement has and will affect the plaintiff's life. See PA. R. CIV. P. 223.3; PA. S.S.J.I. (CIV.) 14.150. Plaintiffs have a duty to mitigate their damages—we must "consider the failure of the plaintiff to undergo surgery or medical treatment that an ordinarily prudent man would have submitted to under the circumstances in an effort to better his condition." Yost v. Union R. Co., 551 A.2d 317, 322 (Pa. Super. Ct. 1988) (collecting cases); see also PA. S.S.J.I. (CIV.) 7.100.

At the outset, both parties agree that a surgeon performing a lap chole can meet the requisite standard of care by employing either the Critical View of Safety technique or the infundibular technique. (See 11/18/20 Tr. 24:3-7, 106:18-107:17, 114:16-18; 11/19/20 Tr. 28:9-19). The questions before us, then, are whether Dr. Pan breached the standard of care, whether his breach caused Greene's injuries, and the extent of her injuries.

We find that Greene has proven by a preponderance of the evidence that Dr. Pan breached the standard of care. There is no dispute that surgeons are to avoid cutting the common hepatic duct, cutting the common bile duct, and damaging the right hepatic artery during a lap chole. See *supra* at 10-11. Dr. Pan did all three during the procedure. Indeed, Dr. Kadry's operative report notes damage to *both* the common hepatic and common bile ducts. (See Gov't Ex. 1-14 at 1-2). Dr. Kadry's notes further demonstrate that clips placed at the bottom of the cystic artery led to a complete occlusion (blocking) of the right hepatic artery. (Id.)

The government posits that Dr. Pan's mistake in cutting Greene's ducts was reasonable and not the result of negligence because Greene had an abnormal anatomy, which caused Dr. Pan to confuse the common bile duct for the cystic duct. We need not reach this question because we find that the evidence presented at trial and the credible testimony offered by Greene's expert, Dr. Simon, proves that Dr. Pan inadequately dissected the area surrounding Greene's gallbladder, and failed to create enough mobility of the gallbladder to confidently identify the two structures to be clipped and cut. (11/19/20 Tr. 186:16-188:20).

Dr. Simon opined, to a reasonable degree of medical certainty, that the intraoperative photograph taken by Dr. Pan—shortly before he dissected and cut what he believed to be cystic duct and cystic artery—establishes an insufficient dissection of the tissue surrounding the relevant biliary structures or mobility of the gallbladder.[7] Dr. Simon pointed out that the intraoperative photograph taken by Dr. Pan and Dr. Ryan showed the "continuity of the liver is nice and smooth," and the absence of any "roughened up tissue" that would suggest dissection occurred. (Id. at 187:22-188:16). We find this testimony to be credible and reliable. The government's expert, Dr. Iannarone, interpreted the intraoperative photograph

[7] (Id. at 187:13-19 ("Court: Can you tell from this picture . . . if there is a third to fifty percent dissection of the gallbladder? Dr. Simon: Sure. There's zero."); id. at 188:6-20 ("So the peritoneum hasn't been violated. It's smooth. It's clear. Nothing has been done there to take that gallbladder down . . . ."); id. at 37:25-38:12 ("Q: And isn't the [operation] report devoid of any comment about what you did beyond dissecting the thin, very thin layer of peritoneum? You don't make any mention of dissecting, you know, two, three millimeters of fatty fibrous tissue to get to and expose the cystic duct, correct? There's nothing like that in your report, correct? . . . . A: No."); see also id. at 170:10-172:13, 187:13-188:20).

differently, and stated that Dr. Pan "took that whole blanket [of fibrofatty tissue] away, and you can see it's dissected. You can see it's clear." (Id. at 194:14-16; see also id. at 8:12-19). We do not find Dr. Iannarone's interpretation of the interoperative photograph to be either credible or persuasive. Critically, Dr. Iannarone acknowledged that the intraoperative photograph does not actually show any dissection of the gallbladder off the liver bed or the cystic plate. (Id. at 190:23-191:3, 194:16-19). And Dr. Pan's operative report make no mention of any dissection beyond the peritoneum into the thicker fibrous tissue or the liver bed. (See Gov't Ex. 1-6; 11/19/20 Tr. 37:3-38:16).

Given this evidentiary void, combined with Dr. Simon's credible testimony regarding the intraoperative photograph, we conclude that Dr. Pan failed to adequately dissect the tissue surrounding the gallbladder and the liver bed, thus inhibiting his ability to apply sufficient traction to the gallbladder and identify with reasonable certainty the structures entering it. Even assuming Greene did have an aberrant anatomy in the form of a short or nonexistent cystic duct, Dr. Pan failed to take the necessary preliminary steps to identify and rule out such a variant. This is a breach of the standard of care under both the Critical View of Safety and infundibular standards.

Dr. Pan's initial breach of the standard of care under the Critical View of Safety inexorably caused additional patient injury. Dr. Pan further breached the standard of care in clipping Greene's cystic artery, causing an occlusion of Greene's right hepatic artery. Both medical experts in this case, as well as Dr. Pan, agree that the right hepatic artery should remain unaltered during a properly performed

lap chole. Dr. Simon acknowledged that Dr. Pan clipped Greene's cystic artery, not her right hepatic artery. (11/18/20 Tr. 119:7-120:10). However, Dr. Simon opined that Dr. Pan placed these clips too close to the right hepatic artery, causing it to thrombose. (Id.) Dr. Kadry's operative report confirms that Dr. Pan's clips—which were placed close to the juncture of the cystic artery and the right hepatic artery—caused a blockage in Greene's right hepatic artery. (Gov't Ex. 1-14 at 2). We find that Dr. Simon's opinion is reasonable and corroborated by the uncontested medical records of Greene's emergency surgery at Hershey Medical Center.

That Greene's right hepatic artery or cystic artery may be small or narrow is of no moment. At trial, the government did not present evidence or argument suggesting that Greene suffered from an arterial abnormality making it difficult to clip the cystic artery. It instead asks us to conclude that, *assuming* Greene had an unusually short cystic duct, her cystic artery *would* have been unusually short as well. (Doc. 35 ¶ 192). "This meant that, in order for Dr. Pan to place the necessary three clips, he had no choice but to place the clips where he did." (Id.) This argument defies logic and the standard of care. First, we were not presented with any evidence or literature explaining that a short cystic duct necessarily carries with it a short cystic artery. (Cf. 11/19/20 Tr. 112:20-113:1). Nor are we aware of evidence—aside from the government's inference—that Greene's gallbladder was unusually close to her right hepatic artery. And second, when applying traction to the gallbladder, Dr. Pan could have, and should have, confirmed that he could adequately clip Greene's cystic artery before proceeding with the surgery. If he could not identify a sufficiently long or wide artery, he should have stopped the

procedure or consulted a specialist. (See 11/18/20 Tr. 90:13-91:4). Surgeons are not granted license to offer post-hoc justifications for their preventable mistakes. See Rhoads v. United States *ex rel.* Dep't of Health & Hum. Servs., No. CIV-04-124-W, 2005 WL 2620207, at *6 (E.D. Okla. May 6, 2005) ("Reliance on a presumed anomaly smacks of postoperative justification in an attempt to explain surgical negligence."). Dr. Pan's decision to proceed with clipping Greene's cystic artery, ultimately resulting in occlusion of the right hepatic artery, constitutes a breach of the standard of care.

The question then becomes whether Dr. Pan's breach of the standard of care during Greene's lap chole caused her subsequent injuries and resulted in damages. We conclude that it did. Given the ease with which we can resolve causation as it relates to the occlusion of Greene's right hepatic artery, we start there. Dr. Kadry's operative report plainly indicates that Dr. Pan's clipping of the cystic artery where it connected with the right hepatic artery caused thrombosis of the right hepatic artery. (Gov't Ex. 1-14 at 2; see also 11/18/20 Tr. 91:23-92:5). That clipping prompted, at a minimum, Dr. Kadry's thrombectomy and anastomosis of Greene's right hepatic artery. (See Gov't Ex. 1-14 at 2). Greene would not have needed this treatment absent Dr. Pan's negligent clipping.

We also find Dr. Pan's clipping and cutting of Greene's common bile duct and common hepatic duct to be a breach of the standard of care and the cause of her injuries. Greene's Roux-en-Y hepaticojejunostomy, performed by Dr. Kadry, was a necessary response to the mutilation of Greene's biliary system. Dr. Pan and Dr. Ryan attempted, and failed, to control the small vessel bleed laparoscopically, and

therefore converted the procedure to open. (Gov't Ex. 1-6 at 2; 11/19/20 Tr. 12:12-16, 62:4-7). To be clear, we do not find, nor does Greene contend, that Dr. Pan's decision to convert to open was, by itself, negligent. (See 11/18/20 Tr. 62:1-96:17, 105:16-18; 11/19/20 Tr. 164:21-177:13).

However, to remedy Dr. Pan's mistakes in clipping and cutting Greene's biliary structures, Dr. Kadry performed an *open* reconstructive surgery. (See Gov't Ex. 1-14 at 2 ("The open cholecystectomy incision was extremely high and over the lower costal margin. I extended this both to the right and to the left towards the abdomen such that the rest of the incision was approximately 2 fingers breadth below the costal margin. The abdominal musculature was opened and the peritoneal cavity was entered."); see also 11/19/20 Tr. 177:4-13). Greene would have therefore realized scarring in her abdomen whether it was because of the first or second procedure. Greene would likewise have suffered loss of sensation in her abdomen. Indeed, the *government's* expert explained Greene's abdominal pain and loss of sensation "might be due to a neuropathy in the subcostal nerve" caused by the cutting of the nerve when converting from laparoscopic to open. (11/19/20 Tr. 149:3-4; see also id. at 149:15-24). Critically, Dr. Iannarone explained that "[Greene] had two cuts. Dr. Pan made the cut, and then Dr. Kadry went in and made the same cut through the same area. *So if Dr. Pan had not cut the subcostal nerve, then Dr. Kadry would have cut the subcostal nerve*, just because that's the anatomy." (Id. at 149:10-14; see also id. at 177:4-13 (Dr. Simon testifying that, "more likely than not within reasonable medical certainty and probability the reason she has more pain on the right than the left is it was operated on twice within three to four days")).

Stated differently, the court finds by a preponderance of the evidence that Greene necessarily suffered the cutting of her subcostal nerve because of Dr. Pan's negligent clipping and cutting of Greene's biliary system as part of Dr. Kadry's reconstruction. It follows that Greene would have suffered the same or similar scarring and loss of sensation as a result.

We now turn to damages. Greene is entitled to a damage award for her physical, mental, and emotional injuries. Her physical pain and suffering has been substantial. As explained *supra*, Greene now suffers from a loss of sensation, a loss of strength, constant pain, an aggravating lump in her stomach, and a large abdominal scar. At least some of these conditions will stay with Greene for the remainder of her life. (See, e.g., 11/18/19 Tr. 95:8-96:5; 11/19/20 Tr. 151:10-19). She also lost much of her mobility for a period after her surgery and struggled to sleep due to her inability to lie flat. This has led her to medicate with prescription drugs nightly. We are also mindful, however, that Greene has largely failed to document many of the affirmative steps taken to treat her physical pain. Indeed, most of her medical records introduced at trial omit reference to incisional pain. Furthermore, she does not follow a prescription medicine regimen targeted specifically at her surgery related injuries—her pain management medication simultaneously treats her remnant orthopedic pain and her incisional pain—and she has denied certain pain treatment. Finally, we note that she struggles to engage in physical activities she was previously able to perform, but she has not lost total capacity to indulge in life's pleasures, like traveling, recreational activities, or enjoying an unrestricted diet. (See 11/18/20 Tr. 172:6-176:7). Nonetheless, the evidence supports a

substantial award of money damages for this type of injury. The court concludes that an award of $375,000.00 is reasonable and appropriate recompense for Ms. Greene's physical pain and suffering.

Greene is also entitled to an award for her mental and emotional injuries. Greene describes severe anxiety and recurring nightmares regarding her surgeries. This concern is especially acute given the reality that Greene's biliary surgery makes it more likely that she will have further related surgeries in the future. See Gov't Ex. 1-5 at 2). This court further recognizes the emotional toll that two invasive procedures conducted over several days takes on an individual. Additionally, Greene suffers understandable embarrassment and a lack of confidence from her lengthy scars. Although, she has not sought psychological treatment or been diagnosed with a psychological condition since her surgeries, the evidence supports an award of $90,000.

IV. Conclusion

We find in favor of Greene and will award her damages in the amount of $465,000. An appropriate order shall issue.

/S/ CHRISTOPHER C. CONNER
Christopher C. Conner
United States District Judge
Middle District of Pennsylvania

Dated: May 18, 2021